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ABSTRACT

A study described the nontraditional adult students attending full-time, occupationally specific vocational training programs in Ohio. It also developed a dropout prediction model of enrolled students using sets of independent variables adapted from the Conceptual Model of Nontraditional Student Attrition and Persistence in Postsecondary Vocational Education Programs (D. R. Johnson 1991). Data were collected by a survey designed to measure independent variables within four constructs: background characteristics, social/psychological integration, environmental mediating factors, and academic/institutional integration. Three mailings produced a 74 percent response rate (n=278). Data were analyzed using the Statistical Package for the Social Sciences. Stepwise discriminant analysis determined the best predictor of the dependent variable, "dropout" or "completer." Results of the discriminant analysis indicated that eight variables were the most significant in predicting dropout and completion in adult vocational job specific training programs: course/schedule, finances/employment, outside agency support, instructor abilities, physical disability, interpersonal relationships, academic ability/habits, and family responsibilities. The two most discriminating sets of variables between dropouts and completers were environmental mediating factors and academic/institutional integration. Recommendations were made for practice to vocational education professionals and for research. (Contains 13 references.) (YLB)

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DROPOUT AND COMPLETION IN ADULT VOCATIONAL JOB TRAINING PROGRAMS: A PREDICTION MODEL FOR THE ADULT VOCATIONAL STUDENT

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DROPOUT AND COMPLETION IN ADULT VOCATIONAL JOB TRAINING PROGRAMS: A PREDICTION MODEL FOR THE ADULT VOCATIONAL STUDENT

Introduction

"A strong back, the willingness to work, and a high school diploma were once all that was needed to make a start in America" (U.S. Dept. of Labor, 1991, p.1). That is no longer true. Work is changing, and the students of yesterday - today's adult workforce - may not be able to survive in the world of work with their present skills and abilities. High performance workplaces become a model for success in the future. "...work is problem-oriented, flexible, and organized in teams; labor is not a cost but an investment" (U.S. Dept. of Labor, 1991, p.3). These new high performance workplaces demand a better educated, better skilled worker.

This changing workplace has increased the importance of "second-chance" training in America. This "second-chance" training predominately assists those who are high school dropouts, unemployed, underemployed, working poor, dislocated workers, and displaced homemakers (Carnevale, 1989). By some definitions the participants in "second-chance" learning are labeled "nontraditional" learners. But, whatever they are called, they are in need - in need of the opportunities that education can provide.

Throughout most of the 20th century there appeared to be an overabundance of American workers; however, by the year 2000 there are likely to be too few well-trained workers to satisfy the nation's economic needs (Carnevale, 1989). The labor force is projected to increase at an annual rate significantly lower than the labor force growth rate of the past two decades (Mangum, 1990). The U.S. Department of Labor (1992) anticipates that 80 percent of the workforce for the year 2000 are already in the workforce, and the number of students who will be entering the workforce is not enough to provide for a competitive America in the next decade. Workers will change jobs several times over their work life. This change will bring about the necessity of new skill development, increased knowledge, and improved ability in decision making and critical thinking.

Meeting the special needs and interests of various adult groups becomes the ultimate challenge to educational providers. This challenge becomes magnified with the projection that 80% of the new entrants into the workforce will be women, minorities and immigrants, while the remainder of the workforce will represent an aging group of adult workers (Naisbitt, 1990).

The President is challenging Americans to "go back to school" and make this a "nation of students" (U.S. Dept. of Education, 1991). But the duration of time spent in a training program must be long enough to acquire a skill well enough to secure employment or increase competency levels to meet the increased job demands. Some students drop out of their training before acquiring sufficient skills for advancement or the procurement of work. Insufficient attention has been directed to the difficulties many of these nontraditional students experience in attempting to complete a vocational training

program. A better understanding of this population will assist vocational educators and planners in providing the proper environment to meet the special needs of this adult population and thereby increase the chances for program completion.

Adult vocational education is essential to all who seek it, but completion of the training program becomes vitally crucial to the fulfillment of the ultimate goal of employability. Believing and understanding the need for participation in these programs is not the problem. The problem lies in keeping students long enough to teach them skills well enough for them to garner employment, keep employment, or advance on the job.

Adults are becoming the nation's most important student population (Barth, 1992). And preparing adults for employment has always been, and will continue to be, an important mission for vocational education. However, understanding attrition and retention can help determine ways of facilitating student learning and completing the goals leading to employability.

Dropout from adult vocational education is a serious problem because it entails costs not only to individual dropouts, but to adult education agencies, organizations and society. For the individual, dropping out means failure to achieve an educational goal, wasted time and energy, and perhaps feelings of anger, frustration, or personal inadequacy. If the dropout behavior is associated with displeasure in the learning process, it may precipitate negative feelings toward adult education and hinder further participation in education in the future (Darkenwald, 1981).

According to available research, dropouts will, relative to those who complete, earn less money, suffer more unemployment, have more health problems, and are more dissatisfied with their personal lives. But this tragedy doesn't just affect the individual. The nation loses in foregone earnings and taxes; more is spent for crime control, welfare, health care, and other social services that unproductive citizens require. When students drop out we all lose (Kennedy, 1988).

Background and Setting

There are several educational learning opportunities for adults in the State of Ohio. One of those adult opportunities is delivered through the Division of Vocational and Career Education within the Ohio Department of Education. That delivery system for adults is full-time, occupationally specific vocational training programs which are administered through one of two types of schools systems in Ohio: joint vocational school districts or city school districts. The programs offered are job specific and categorized under the four service areas of the Division of Vocational and Career Education: (1) Agriculture, (2) Business/Marketing, (3) Home Economics, and (4) Trade and Industrial. There are approximately 534 of these programs serving persons who have completed or left high school and who wish to train for occupations best learned in programs of approximately eight to twelve months in length.

Statement of the Problem

To date, little is known about the full-time adult vocational student seeking job-specific training. Statistics from the Ohio Division of Vocational and Career Education show that approximately 8,000 adults are served through this method of vocational education, but little demographic information has ever been collected which would allow an insight into the problems, concerns, and needs of these students. An even more serious omission of data is the number of students who leave these programs without completing their occupational training or securing a job in the area of training for which they were enrolled. Why do these students leave? Are they employed? Could they have been retained?

Purpose of the Study

The purposes of this study were (1) to describe the nontraditional adult students (N=8010 students) attending full-time, occupationally specific vocational training programs (N=534 programs) in the state of Ohio, and (2) to develop a dropout prediction model of enrolled students using sets of independent variables adapted and revised from the *Conceptual Model of Nontraditional Student Attrition and Persistence in Postsecondary Vocational Education Programs* developed by Johnson (1991).

Theoretical Construct

Johnson (1991), in an extensive review of vocational postsecondary attrition, found that major contributions to the understanding of student attrition in postsecondary education evolved from two-year and four-year college and university settings. Generalizing these findings to vocational education settings becomes problematic. Not only do the nontraditional adult students differ in their goals, background, characteristics, and achievement levels, their education orientation is toward job-specific training and not general education or college preparatory. Further, postsecondary vocational training is usually shorter in length than the two- or four- year institutions used most often in postsecondary attrition studies. Therefore, the differences in socio-demographics, education orientation, and program length coupled with the fact that most of the students attending postsecondary vocational training are nontraditional students, the need for a model specific to the characteristics and backgrounds of this population is necessary. Johnson (1991) has attempted to construct such a model, a portion of which was utilized in this study with some minor revisions.

In the Johnson Proposed Conceptual Model there were four proposed sets of independent variables labeled Intrinsic and Extrinsic Motivation Factors with subsets of variables under each category. Through an intense content analysis these variables were condensed into the sets of independent variables shown in Figure 1 and were used as shown for testing in this study. The four categories of variable sets in the revised model represented four constructs which were comprised of the independent variables listed under each of the headings. All variables listed under the headings became separate independent variables used in testing for significance and determining inclusion in a discriminant analysis procedure.

Figure 1. Revised model comprising the independent variables sets used for testing student dropout/completion in adult vocational, job specific training programs in the state of Ohio.

Research Objectives

The study was guided by the following research objectives and hypotheses.

1. To determine a demographic profile of the type of student enrolled in a full-time, occupationally specific adult vocational training program.

2. To determine retention and attrition rates that can serve as a baseline for monitoring the effects of subsequent institutional or program changes.

3. To develop a prediction model to identify students who are potential dropouts.

Population

The target population was full-time, occupationally specific adult vocational education students in Ohio. Based upon the information provided by the Ohio Division of Vocational and Career Education, there were 534 training programs in Ohio in FY91. With an average of 15 students in each program, training opportunities were provided for approximately 8,010 students in 1991. The total enrollment numbers for fiscal year 1991 were used with confidence as no new program could be added to any school system because of reduced funding resources by the State Division of Vocational and Career Education.

After a random selection of programs was made, all students in the selected programs became the sample for the investigation. The number of programs needed for the cluster sample was determined by using the Krejcie and Morgan Table for Estimating Sample Size of a Given Population (Krejcie & Morgan, 1970). This table is based on 95% level of confidence and a 5% sampling error.

The cluster sample of programs was drawn on September 8, 1991, which was when most of the full-time programs began in Ohio. From the list of programs a directory of enrolled students was compiled by mailing a packet of information-gathering forms to all adult vocational directors of school from which the programs were selected.

As non-response was an anticipated problem, and because all schools do not keep accurate student information, the information-gathering forms also collected pertinent demographic and background information found in the literature to be variables which may affect dropout and retention. This information was used for follow-up purposes of non-respondents by comparing respondents and non-respondents on known characteristics. The information-gathering forms were reviewed by a panel of experts and found to be valid for its intended purpose.

Instrumentation

Data were collected from a survey instrument developed by the investigator. It was designed to measure each independent variable within each of the four constructs shown in Figure 1.

After the instrument was designed, it was submitted to a panel of experts for the purpose of establishing content validity. The instrument was then field tested for content and face validity by full-time, occupationally specific adult vocational program students enrolled in a program which was not randomly selected for participation in the initial study. The revised instrument was pilot tested for reliability to ensure internal consistency by performing a Cronbach's Alpha on each set of five items comprising the fifteen independent variables. The alphas ranged from .60 to .96. To ensure consistency over time a Test/Retest strategy was utilized by administering the instrument to the same group of student two times (one week apart). The results were compared for agreement using a Pearson's r. The pilot test was conducted by a group of students enrolled or dropped

out of a full-time occupationally specific adult vocational training program not drawn in the random selection. Results of the test/retest procedure ranged from .50 to .93.

Data Collection

The survey instrument with accompanying cover letter and an incentive item (a one dollar bill) was mailed to participants (n=376). A reminder/thank you postal card was mailed to all participants (n=376) seven days after mailing the initial packet. A second complete packet was mailed to non-respondents (n=214) seven days after the first follow-up postal card. A third full packet was mailed to the remaining nonrespondents (n=121). The entire data collection process was completed within six weeks and produced a 74% response rate (n=278).

Non-respondents were controlled for by drawing a random sample of ten percent of the final non-respondents and contacting them by phone for an interview requesting responses to the questionnaire. Those non-respondents were compared with respondents on randomly selected variables. As there was no significant difference, non-respondents were presumed to resemble respondents, thereby permitting generalization to the target population.

Further, non-respondents' known characteristics (as determined by the information-gathering form completed by each student upon enrolling in the program) were compared to respondents' known characteristics as suggested by Miller and Smith (1983). As no significant differences were found, this procedure further established validity to the process of generalizing to the target population.

To verify the accuracy of students' self-reported completion status, all teachers were contacted. The percent of agreement between teachers' reports and students' reports was 93%. The small discrepancy was postulated to reflect (1) the interpretation of whether or not those who left for employment reasons received employment in the area for which they were receiving training, and (2) those who obtained their desired skill level believed they completed.

Data Analysis

The data collected were analyzed using the Statistical Package for the Social Sciences (SPSS/PC+). Descriptive statistics were used to organize, summarize, and analyze the differences between groups. Point biserial correlations were used to determine the variables for inclusion in the discriminant analysis procedure. Stepwise discriminant analysis was used to determine the best predictor(s) of the dependent variable, "dropout" or "completer". The data were checked for normal distribution and equal group covariance (Box's M test) to adhere to the assumptions of discriminant analysis.

Results

The results of the discriminant analysis procedure indicated that eight variables were the most significant in predicting dropout and completion in adult vocational job specific training programs in the state of Ohio: Course/Schedule, Finances/ Employment, Outside Agency Support, Instructor Abilities, Physical Disability, Interpersonal Relationships, Academic Ability/Habits, and Family Responsibilities.

In relation to the variable sets proposed by the Johnson Model (1991) and also in accordance with the Bean and Metzner Model (1985) all four variable sets remain in this prediction model; however, their composition has changed greatly. As shown in Figure 2, Background Characteristics contains only the variable Physical Disabilities. This variable was determined to be associated with students who dropped out of their training programs.

Figure 2. Independent variables found to have a significant association with dropout and completion among adult students in full-time, job specific vocational training programs. The asterisk denotes those found to be discriminating in the prediction model.

The variable set Social/Psychological Integration also contains only one variable that is significantly related to completion of training programs, Interpersonal Relationships. The variable set, Environmental Mediating Factors, proved to be one of the two most discriminating sets of variables between dropouts and completers. Remaining in this variable set after testing were Finances/Employment and Family Responsibilities, both of which were associated with students who dropped out, and Outside Agency Support, which was correlated with students who completed.

The other most discriminating set of variables was Academic/Institutional Integration. The most distinguishing variable (as shown by the highest standardized discriminant function coefficient) was Course/Schedule. This variable was correlated with completion, which would indicate the importance of placing students in their area of interest and ability. Also in this variable set was Academic Ability/ Habits, which followed true to form with the many research studies involving attrition: students' grades and abilities matter significantly in persistence to complete. The other variable found to be distinguishing between dropouts and completers was Instructor Abilities. Completion was more evident among those students who felt the instructor used methodology which was helpful to their learning, cared about their progress, and demonstrated acceptable ability and style of teaching.

Using the variables shown in Figure 2, 22% of the variance between dropouts and completers could be explained. Also, from this revised model, 76% of the cases were correctly classified (75% of the completers and 79% of the dropouts).

Compiled Student Profile

It is not the intent to infer any type of causation with the following scenario, but only to fabricate an imaginable portrayal of the average student in a vocational, job specific training program in Ohio. It must be remembered that "cause" cannot be inferred from a correlational study and that only an association can be shown.

From the data collected it appeared that adult students attending full-time, occupationally specific training programs in Ohio are predominantly white women approximately 35 years of age with about a 2-out-of-3 chance of being married. She is probably receiving outside agency support (from a Pell grant or funding from JTPA) to attend the training program. She is probably unemployed and has a one-in-three chance of being on welfare. Before entering the program she was an hourly wage earner with a high school diploma or less living on a total household income of under $10,000. Her main reason for enrolling is to learn new job skills for employment. She has a 17% chance of dropping out of the program before completion, and if she does, she will attribute it to having too many responsibilities; not enough money; unable to work and go to school at the same time; dissatisfied with the quality of teaching; and not having liked the instructor. Also, if she drops out there is a 29% chance that she has a physical disability.

If finances and employment cause her great worry, along with abundant family responsibilities, she will probably drop out. That chance is even greater if she has a physical disability.

If she does complete, it will be attributable to attending a course that was interesting and relevant to her needs and was offered at a time convenient to her schedule. She was able to obtain outside agency support in an amount adequate for her economic condition, and she was able to develop friends and have some social contact while attending the program. Prior to enrollment she experienced some success with previous educational experiences because of her academic abilities, attendance and study habits. During her training program she was fortunate enough to have an instructor who utilized proper teaching methodologies, had a caring demeanor in regard to her progress, and taught in a manner acceptable to her as an adult student.

Recommendations for Practice

The problems of dropout are very complex; however, from the theory derived from a review of literature and the knowledge gained from the findings of this study, insights were formulated about why students drop out of vocational training programs that will hopefully aid vocational educators and planners in deterring adult students from dropping out of critically important training programs - programs vital to the economic survival of themselves and their families. The following recommendations are made to vocational education professionals:

1. It is recommended that better methods should be implemented to collect, report, and organize more information about adult vocational students. Compilation of these data will provide a baseline from which theory can grow. Realization of needs and trends can become evident from an ongoing process of data collection and analysis.

2. To assist in placing students in a course that is interesting, appropriate, and properly scheduled, procedures should be implemented to assess all students in the areas of abilities, interests, and needs. As Course/Schedule was one of the most important discriminating variables, it is only natural that this area become a priority through assessment and testing.

3. In view of the findings regarding disabilities, finances, employment and family responsibilities, it is critical that information be gathered regarding students' personal, family and financial needs. Appropriate support and counseling services should be provided for the student.

4. The need for better dissemination of the types of programs and assistance available to students is critical; therefore, better marketing techniques should be utilized to (1) inform adults who may be facing layoffs, or plant closings; and reaching the unemployed by providing information through

churches, libraries, and shelters; and (2) alert students of the available outside agency support systems available to assist them during training.

5. Handicapped students should be monitored regularly to ascertain not only if their special physical needs are being met, but that they acquire feelings of "fitting in" and experience aspects of socialization with other class members.

6. The quality of teaching performance and the care instructors show their students is important, therefore, all adult instructors should receive ongoing preservice and inservice training to keep them current and aware of the needs of this adult population.

7. Andragogical teaching techniques for instructors is important. As Instructor Abilities (ability, methods, and concern for students) was an important discriminating variable, determining what is important in meeting the needs of adult students in terms of methodology, expectations, and unique characteristics and needs becomes necessary.

8. Business and education linkages should be formed not only to alert the public sector of effective skill training being offered, but as potential placement sites for students completing their training program. Placement statistics become important to the relevancy of course offerings.

9. Establish business linkages that might assist with the financial needs of students preparing skills necessary to their business or industry. Early job placement, co-ops, or apprenticeships might be possible.

10. As a student's academic ability and performance are significant to completion, there is a distinct need to further develop adult basic academic skills along with, or prior to, enrollment in adult programs. A unit on "how to study" may also prove helpful.

11. Time should be allotted during the training program to allow students to get acquainted with one another, possibly a monthly get-together at lunch or other social activity to encourage friendships as these interpersonal relationship tend to encourage completion. Instructors should be part of that socialization and viewed as a resource person in the environment as opposed to a dominant provider of information. The instructor's concern for the student, if genuine, can assist in the student's completion of the program.

12. The technology expertise of teachers should be current and upgraded through inservice or "tech-leave" as instructor ability is important to students and may aid in their program completion.

13. There should be a concerted effort to implement what we already know - dissemination of information is vital.

Recommendations for Further Research

The population of full-time adult vocational students seeking occupationally specific training has not been studied previously. There has only been the knowledge base of the "nontraditional" adult student attending two-year and four-year programs, ABE, or GED programs from which to build theory. However, many discrepancies about significant variables related to dropout have surfaced when different populations are used. It is because of these discrepancies that studies unique to this population should be conducted. The following are recommendations for such further research.

1. There appeared to emerge a possible theory regarding the alleged significance of background characteristics and their association with dropout. It seemed that the type of population was associated with the type of learning environment selected by the student. This tended to have an effect on whether or not particular variables were significant to dropout and persistence. Most prior research dealt with contrasting nontraditional and traditional students with degreed or non-degreed institutions. Further research should be conducted to ascertain the possibility that the differences may lie in more complex combinations related to the learning environment selecte d by the adult student.

2. More research is necessary regarding handicapped students. Determining the other major types of handicap conditions that adult vocational students have (other than restricted mobility, sight, and hearing) will better prepare professionals in meeting both their physical, emotional, and social needs.

3. Follow-up studies are needed on completers and dropouts of these types of programs to determine employment status, need for additional training, economic condition, and the effect of their vocational training.

4. Replication of this study should be made in other states offering adult vocational job specific full-time training programs.

5. There is a strong need to further define additional variables contributing to retention of adult vocational students. Further contributions should be made to this emerging model through the addition of variables such as those contained in other models (e.g., motivation, congruence, expectancy theory).

Adults will be entering institutions of education of every kind as our country becomes a worldwide competitor in a technological market. This should impact the manner in which we advise, train, and educate adults. However, regardless of the decisions we as professional vocational educators make, if they are not made on the basis of sound research and implemented to reflect our new gained knowledge, adults will continue to refuse to participate or continue to dropout until we do so.

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